4. (Amended) A method according to claim 1, wherein the first physical channel is shared between several users and each user has a unique second channel wherein the modulation and coding scheme used by the first channel is determined by the instantaneous transmitted power of the second channel, the user of the second channel being currently served by the first channel.

5. (Amended) A method according to claim 1, wherein the transmitter is a base station and the receiver is a mobile station.

6. (Amended) A method according to claim 1, wherein the first channel is a shared downlink channel and the second channel is a dedicated physical channel.

7. (Amended) A method according to claim 6, wherein the modulation and/or coding scheme used on the downlink shared channel when transmitting to a specific receiver is controlled by the power control commands transmitted by the receiver in the reverse link.

8. (Amended) A method according to claim 7, wherein the power control commands are transmitted in combination with other information.

9. (Amended) A method according to claim 6, wherein the power of the dedicated physical channel is mapped into a suitable modulation and coding scheme for the downlink shared channel.

10. (Amended) A method according to claim 9, wherein a varying modulation and coding scheme is used on the downlink shared channel.

11. (Amended) A method according to claim 9, wherein the mapping is static.

12. (Amended) A method according to claim 9, wherein the mapping is dynamic.

13. (Amended) A method according to claim 11, wherein a predefined table is used for mapping the power level to the modulation and coding scheme.

14. (Amended) A method according to claim 12, wherein the mapping is changed as a function of some retransmission requests for data blocks being retransmitted over the shared channel.

15. (Amended) A method according to claim 12, wherein at least two base stations are transmitting at the same time to the same mobile station, wherein the power of the DPCH is multiplied with a constant k, k > = 1, said constant being used for determining the modulation and coding scheme of the DSCH, both channels DPCH and DSCH transmitting from the same base station.

16. (Amended) A method of modifying the transmission parameters in a radio communication system comprising at least one transmitter, at least one receiver, a first channel for transmitting first information from the at least one transmitter to the at least one receiver, and a second channel for transmitting second information from the at least one transmitter to the at least one receiver, the method comprising the steps of

setting the power used for transmitting in the second channel; and

adapting a modulation and/or coding scheme used in transmitting in the first channel, wherein in the step of adapting, the choice of the modulation and/or coding scheme is controlled by the level of the power at each instant set for transmitting in the second channel.

17. (Amended) A method according to claim 16, wherein at least two transmitters are transmitting at the same time, wherein the power of the second channel is multiplied with a constant k.

18. (Amended) A system radio communication system comprising at least one transmitter, at least one receiver, a first channel for transmitting first information from at least one transmitter to the at least one receiver, and a second channel for transmitting second information from the at least one transmitter to the at least one receiver, the system comprising:

means for setting the power used for transmitting in the second channel, and

means for adapting a modulation and/or coding scheme used in transmitting in the first channel, comprising

means for controlling the choice of the modulation and/or coding scheme by means of the level of the power at each instant set for transmitting in the second channel.

19. (Amended) A computer program product directly loadable into the internal memory of a digital computer comprising software portions for performing the steps of claim 1, when said product is run on a computer.